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Economic Well-Being Based on Income, Consumer Expenditures and Personal Assessments of Minimum Needs

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ABSTRACT

Responses to minimum income and minimum spending questions are used to produce economic well-being thresholds. Thresholds are estimated using a regression framework. Regression coefficients are based on U.S. Survey of Income and Program Participation (SIPP) data and then applied to U.S. Consumer Expenditure Survey (CE) data. Three different resource measures are compared to the estimated thresholds. The first resource measure is total before-tax money income, and the other two are expenditure based. The first of these two refers to expenditure outlays and the second to outlays adjusted for the value of the service flow of owner-occupied housing (rental equivalence). The income comparison is based on SIPP data while the outlays comparisons are based on CE data. Results using official poverty thresholds are shown for comparison. This is among the earliest work in the U.S. in which expenditure outlays have been used for economic well-being determinations in combination with personal assessments, and the first time rental equivalence has been used in such an exercise. Comparisons of expenditures for various bundles of commodities are compared to the CE derived thresholds to provide insight concerning what might be considered minimum or basic.

Results reveal that CE and SIPP MIQ thresholds are higher than MSQ thresholds, and resulting poverty rates are also higher with the MIQ. CE-based MSQ thresholds are not statistically different from average expenditure outlays for food, apparel, and shelter and utilities for primary residences. When reported rental equivalences for primary residences that are owner occupied are substituted for out-of-pocket shelter expenditures, single elderly are less likely to be as badly off as they would be with a strict outlays approach in defining resources.

1. INTRODUCTION

Personal assessments of what is needed financially to provide for one's minimum level of living can be used to produce measures of economic well being (see Garner and Short 2003a for a list of several studies). Household surveys are often sources of these data. The current study incorporates data from two U.S. federal household surveys, the Survey of Income and Program Participation (SIPP) and the Consumer Expenditure Survey (CE).

The potential for collecting personal assessments of economic well-being using federal household surveys for the U.S. began about 25 years ago when three major activities were independently undertaken by the Census Bureau and the Bureau of Labor Statistics (BLS). First, in 1979, the Census Bureau supported the collection of minimum income levels and evaluations of personal income in a federal household survey as part of the Census Bureau Research Panel of the Income Survey Development Program (ISDP) (see Danziger et al. 1984).

Second, at about the same time, the Bureau of Labor Statistics (BLS) contracted with the University of Wisconsin-Madison Institute for Research on Poverty and Center for Social Sciences at Columbia University to study the BLS Family Budget Program (Expert Committee on Family Budgets 1980; Watts 1980). The Expert Committee noted that direct assessments of minimum needs could be used to establish a central prevailing norm of levels of living as understood by the population, and that these norms could be used to establish new Family Budgets. They recommended that perceptions of consumption levels associated with particular standards of living be examined in addition to perceptions of income levels. They stated that perceptions of consumption, for example, could be used, "… to determine how much people feel it would be necessary for a family to spend on food in order to have a given level of living – a minimum level, an adequate level, etc." (Expert Committee on Family Budgets 1980, p. 95). The

Committee recommended that direct questions concerning minimum needs be asked in household surveys and that Family Budgets eventually be based on responses to these questions.[1] A minimum income question was included in the CE in 1982 in response to the Expert Committee's recommendation.

And third, the Census Bureau included minimum income and minimum spending questions in a Survey of Income and Program Participation (SIPP) Topical Module on Basic Needs. The module was administered in 1993, panel-wave nine with data collected in the 1995 (see Kominski and Short 1996). Questions about income satisfaction were also included in the module along with personal assessment questions focused on other aspects of material well-being (for analyses of data from these other questions, see Bauman 1998 and Bauman 1999).

Personal assessment questions about minimum income and spending support a more populist or democratic framework for living standards measurement as opposed to one based strictly on expert judgment, for example. Such measures are based on the notion that ordinary people, as opposed to experts, know what they need in order to get along or prosper. When minimums refer specifically to certain items, a hybrid measure results that reflects both the views of experts concerning the items required for basic living and ordinary people's personal assessments of how to define these items and their level of income or spending needs.[2]

The purposes of this study are to present subjective economic well-being thresholds, based on minimum income (MIQ) and minimum spending questions (MSQ), and to compare these to three resource measures to calculate the percentage of households whose resources are insufficient relative to their needs as implied by these measures. Additional comparisons of

[1] The Expert Committee stated that, "A program of research and testing should develop methods leading toward eventual replacement of the median-type of norm we are currently recommending for the Family Budgets with the norms derived directly from people's perceptions" (p.52).
[2] The National Academy of Sciences Panel on Poverty and Family Assistance recommended a threshold that is also a hybrid for poverty measurement with items specified by the Panel to include food, clothing, shelter, utilities, and other basic items. Median expenditures for these items for a two-adult, two-child family would then be used to produce thresholds for other families (Citro and Michael 1995).

thresholds to expenditures for various bundles of commodities are made to gain insight regarding what might be included in one's basic bundle, and how this can differ by demographic group. The resource measures include before-tax money income, total expenditures outlays, and an expenditures outlays measure that accounts for the rental equivalence of owner occupants. The latter measure reflects the value of the flow of services from owner-occupied housing, and as such, represents consumption needs as opposed to spending needs. No other adjustments are made for the consumption of other commodities in the analysis. Before-tax money income focuses on one's *ability* to attain a level of living. Expenditures focus more on one's *actual* level of living.

The expenditures based approach is related to a recommendation made by the National Academy of Sciences Panel on Poverty and Family Assistance (hereafter referred to as the NAS Panel) that a consumption or expenditures concept of family resources be considered for measuring poverty (Citro and Michael 1995, p. 13). Comparing expenditures, or some variant of expenditures such as a value for consumption, to a threshold that represents some minimum standard of living is in the tradition of previous research (e.g., Andress et al. 2001; Andrews et al. 2001; Grootaert and Braithwaite 2000; Gundersen and Oliveira 2001; Lanjouw and Lanjouw 2001; Mayer and Jencks 2000; Milanovic 1998; Pan 2003; Pradhan and Ravallion 2000; Slesnick 1993, 1994, 1998), and is being used increasingly in studies of economic well being in developing countries (see Deaton and Grosh 2000, and "Welfare in Bosnia..." 2002 as an example).[3]

The MIQ and MSQ thresholds produced for the U.S. thus far have been compared to income only. To our knowledge, this study represents the first time expenditure outlays and an outlays measure adjusted for rental equivalence have been used in combination with MIQ and

[3] Also see Census (2003) for a more detailed discussion of the use of consumption and expenditures in measuring economic well being.

MSQ data to examine economic well-being and poverty for the U.S.[4] However, total expenditures, as defined by the BLS for publication, were previously compared to official poverty thresholds by Federman et al. (1996). In addition, a recent study published by the Census Bureau uses CE expenditure outlays to examine the distribution of consumer durables across deciles based on outlays (Census Bureau 2003) as an approach to study economic well-being.

The current study is an extension of the earlier Garner and Short (2003a, b) research which used data from the SIPP. As in the previous studies, personal assessment thresholds are derived using the intersection method first introduced by Goedhart et al. (1977), but the current model is simplified compared to that used by Garner and Short in their first study (2003a).[5] As before, data from the SIPP Topical Module on Basic Needs, 1993 panel-wave nine, are used to estimate regression coefficients that relate minimum income or spending and actual before-tax money household income. For the earlier study, predicted minimum income (MIQ) and minimum spending (MSQ) thresholds were produced and compared to before-tax money income. The current study again compares predicted thresholds to before-tax money income using the simplified model specification and, in addition, applies results from the SIPP based regression to the CE to produce a companion set of thresholds as noted. Using data from both sources, a set of comparisons is made for the MIQ and MSQ thresholds. The MIQ is compared to SIPP before-tax money income and the MSQ to CE expenditure outlays. Other comparisons are presented for illustration.

When before-tax money income is compared to a threshold based on minimum income responses, it is assumed that income for making ends meet are being considered. What a respondent considers "to make ends meet" can be broad and could possibly include savings, for

[4] See Deaton (1998) for a discussion of the choice of a welfare measure. See Ritakallio (2003) for research on the importance of housing costs in welfare comparisons.
[5] The regression model in the earlier study included interaction terms while the current study focuses on primary effects. The earlier study is based on the De Vos and Garner (1991) model.

example, for a child's future college education or it may include payments on previously borrowed funds. Thus comparing income to the MIQ based threshold seems appropriate. In contrast, the MSQ asks respondents to focus specifically on spending and basic necessities such as food, shelter, clothing and other essential items for daily living. Thus, comparing expenditure outlays is likely the more appropriate resource measure to compare to a MSQ threshold. If respondents are thinking of what it costs to meet their consumption versus spending needs, say for housing, comparing the MSQ threshold to expenditures that account for the value of their consumption might be the preferred approach. Comparing minimum spending based thresholds with expenditure outlays is not possible with the SIPP as limited expenditure data are collected in that survey.[6] For this part of the analysis CE expenditure data are used. Estimated SIPP based coefficients are applied to a sample of CE respondents and then weighted to derive population based thresholds. Since the SIPP and CE are designed to both represent the same U.S. population, the estimated thresholds should be quite similar.

Based on cognitive research, Stinson (1997)[7] reported that respondents can identify minimum economic needs, and when faced with changes in their economic situations that lead to reduced income, can provide a minimum set of expenditures that they consider necessary. How respondents make a distinction between income and spending needs was not examined by Stinson, nevertheless her research supports the notion that minimum income represents a higher level of living than does minimum spending. If this is the case, then one might consider a higher MIQ based threshold as representing a "social minimum standard" while a lower MSQ based threshold would represent a "subsistence minimum standard." Lower thresholds are expected from the MSQ as compared to the MIQ as the MSQ is more specific in defining basic needs than

[6] In the 1993 SIPP Panel, limited expenditure data were collected, for example, for child care expenditures.
[7] In the early 1990's the BLS, with support from the Census Bureau, conducted cognitive testing on what respondents think when asked subjective well-being questions like the Minimum Income Question (MIQ) and Minimum Spending Question (MSQ). Stinson was the lead researcher for the project.

is the MIQ. This hypothesis is based on Stinson's work (1997), and earlier findings of Morissette and Poulin (1991) for Canada, and Garner and Short (2003a, b).

Results reveal that MIQ and MSQ thresholds are statistically significantly different in the two surveys with the MIQ thresholds being higher. Different resource measures have implications regarding one's ability to meet perceived basic needs, particularly for certain population subgroups such as the elderly. Comparisons of thresholds to expenditures for various commodity bundles suggest that "minimums" differ not only in terms of level but also in terms of commodity bundle for demographic subgroups.

This research suggests that a closer examination of minimum spending is important. Responses to the MIQ and MSQ likely differ because people think "making ends meet" requires more than "spending" for barely adequate food, shelter, clothing, and other essential items. When a basic living threshold is desired for well-being examinations, the MSQ could serve as the basis for such a measure. The MSQ calls for a greater specificity of basic needs than does the MIQ and is less likely to be affected by the unpredictability of income.

The paper is divided into three remaining sections. A brief overview is presented along with a description of the data and methods. The results and conclusions follow.

2. OVERVIEW, DATA and METHODS

2.1 Overview

The minimum income question (MIQ) and minimum spending question (MSQ) asked in the U.S. Survey of Income and Program Participation (SIPP), and used in this study, are the same as those asked in the Survey of Consumer Finances conducted by Statistics Canada in the 1980's (Morissette and Poulin 1991). The MIQ had been asked by previous researchers in Canada, the

U.S. and other countries;[8] however the Canadians introduced the MSQ as another version of the MIQ. The MSQ refers specifically to barely adequate food, shelter, clothing, and other essential items for daily living. Morissette and Poulin (1991) reported thresholds based on the MSQ that were lower than those based on the MIQ. Garner and Short (2003a, b) found the same result using SIPP data and concluded that the MIQ and MSQ thresholds are conceptually different, unlike the underlying assumption of Morissette and Poulin (1991) and Stinson (1997). The only other country, that we have been able to identify, in which questions about the cost to maintain a level of minimum living has been asked is the People's Republic of China.[9]

Subjective thresholds and resulting rates of the population below the thresholds are produced using two different sets of data, the SIPP and CE. First, MIQ and MSQ thresholds are produced for a weighted sample of U.S. households using SIPP data and a regression of the minimums on total before-tax household income and other socio-demographic variables. Before-tax money income is included in the model for two reasons: first because the MIQ is asked with regard to before-tax money income; and second because this income is the same as that used for official poverty statistics although the data source differs.[10] Household before-tax money income is compared to the MIQ and MSQ household thresholds to produce subjective poverty rates; official poverty thresholds are presented for comparison.

Second, relationships between the SIPP MIQ and MSQ data and income, along with other socio-demographic variables, are assumed and then applied to a weighted sample of

[8] We are aware that the MIQ has been asked in the following countries at least: Australia, Belgium, Czech Republic, Germany, the Netherlands, Russia, Slovakia, and Switzerland.

[9] As part of the 1995 Chinese Household Income Projects survey, urban households in China were asked a minimum needs based question. The question can be referred to as a minimum spending question since the reference "need" is "the cost of maintaining a minimum standard of living". The MSQ asked is (translated from Mandarin): "What is the monthly cost of maintaining a minimum standard of living for the whole family in 1995?" The Chinese Household Income Survey was conducted as part of a major research program of the Chinese Academy of Sciences (Bishop 2003). Also see Bishop, Luo, and Pan (2004) and Pan (2003) for analyses of these data; both sets of authors used consumption expenditures rather than income for the regression intersection model. Pan (2003) compared the predicted minimum thresholds to consumption expenditures to assess poverty while Bishop, Luo, and Pan (2004) compared the derived thresholds to income. Gustafsson, Shi, and Sato (2002, forthcoming) used perceived minimum needs data collected for 1999 in twelve cities in China. The question for this study is (as translated from Mandarin): "According to your actual situation how much are your minimum, housing living expenses each month?" Income was used in the regression intersection and income was compared to predicted thresholds to assess poverty.

[10] Official poverty statistics are based on data from the Current Population Survey, not the SIPP.

consumer units (for definition, see DATA section) participating in the U.S. Consumer Expenditure Survey (CE) to produce thresholds. When using the CE, MIQ and MSQ thresholds are compared to total expenditure outlays to produce an additional set of subjective poverty rates. MIQ and MSQ thresholds are also compared to smaller bundles of expenditures to provide insight regarding what might be considered to be minimally necessary. Total expenditure outlays adjusted for the value of the flow of services of owner-occupied housing is also compared to the thresholds. Such a comparison is meaningful if answers to the MIQ and MSQ reflect "consumption" needs as opposed to "spending" needs. Such an interpretation would be reflective of a respondent answering the question with reference to people in general, rather than to his or her own circumstance. Stinson's work (1997) suggests that this might be the case, for example, as an owner might refer to less expense rental housing for his or her shelter needs. Poverty rates based on official poverty thresholds and outlays with and without the consumption adjustment for shelter are presented.

2.2 Data

The SIPP data were collected from the 1993 panel of households using the Topical Module on Basic Needs, the last in a series of nine modules. Data were collected from October 1995 through January 1996. Household characteristics refer to the data collection period and total before-tax money income is for the previous four months. Thus income was reported for the last four months beginning in June 1995 for those interviewed in October 1995, and December 1995 for those interviewed in January 1996. The MIQ was asked of only half of the SIPP respondents to the Topical Module (Table 1). The other half were asked the MSQ.

The minimum income question (MIQ) follows:

> *To meet the expenses you consider necessary, what do you think is the minimum income, BEFORE-TAX, a family like yours needs, on a yearly basis, to make ends*

meet (If you are not living with relatives, what are the minimum income needs, BEFORE-TAX, of a individual like you?)

The minimum spending question (MSQ) follows:

In your opinion, how much would you have to SPEND each year in order to provide the BASIC necessities for your family? By basic necessities I mean barely adequate food, shelter, clothing, and other essential items required for daily living?

Table 1. SIPP Sample Distribution by Assignment (total sample n=17,572)

	Minimum Income Sample	Minimum Spending Sample
Half Sample[a]	8853	8713
Observations for regression-intersection model[b]	6332	6292

[a] Six households assigned to the Basic Needs Module did not answer the MIQ or MSQ.

[b] Positive minimum values reported and full set of regressors.

The reference period for the MIQ and MSQ varied depending upon the preferences of respondents. The majority of respondents answered the MIQ and MSQ in annual dollar values: 67.8 percent for the MIQ and 53.7 percent for the MSQ. Over 38 percent of the MSQ respondents used a monthly reference period in contrast to the 26 percent of the MIQ sample (See Table 2).

Table 2. Distribution of Paritcipating SIPP Sample by Reference Period

Time Period	Minimum Income Sample	Minimum Spending Sample
Week	6.0	7.6
Bi-weekly	0.4	0.4
Monthly	25.8	38.3
Yearly	67.8	53.7

Data were collected from households; however, the MIQ and MSQ refer to a family situation. A household is defined in the SIPP as all the people who are living in a housing unit. A housing unit is defined as a living quarters with its own entrance and cooking facilities. A

family, in contrast, is composed of all persons who are related by marriage, adoption, or other legal arrangement.

The CE sample, for which thresholds are produced, include consumer units interviewed in the last calendar quarter of 1995 and/or first quarter of 1996; data were collected using the Quarterly Interview instrument. In the CE Interview, expenditures for the three months prior to the interview are collected during a single interview. Thus, the earliest reference period for the entire sample would be the three months prior to October 1995 or July 1995. The last set of interviews, conducted in March 1996, refer to expenditures beginning in December 1995 and ending in February 1996. These time periods were selected as they overlap, although not perfectly, with the reference period for the SIPP Topical Module. For this study, as for official publications of expenditures, quarterly reports of expenditures are assumed to be independent. As most of the sample's expenditures refer to 1995, results are assumed to be for 1995, the same as for the SIPP.

Expenditure data are collected from consumer units (see U.S. BLS 1997b). Consumer units are defined slightly differently from households and families. A consumer unit comprises: (1) all members of a particular household who are related by blood, marriage, adoption, or other legal arrangement; (2) a person living alone or sharing a household with others or living as a roomer in a private home or lodging house or in permanent living quarters in a hotel or motel, but who is financially independent; or (3) two or more persons living together who use their income to make joint expenditure decisions. Financial independence is determined by the three major expense categories: housing, food, and other living expenses. To be considered financially independent, at least two of the three major expense categories have to be provided entirely, or in

part, by the respondent. For the time period under study, 96 percent of all consumer units (CU population weighted) were also households with no other consumer units present.

2.3 Estimating the Subjective Threshold: The Intersection Method

The intersection method of producing subjective minimum thresholds was first introduced by Goedhart et al. (1977) and was based on the relationship between minimum income and actual income. The assumption in the current study is that the relationship between minimum spending and actual income is similar to the relationship between minimum income and actual income. The subjective threshold (*X**) is calculated as the intersection of the relationship:

$$\ln(X_{\min}) = a_0 + a_1 \ln(Y) + a_2 z_2 + a_3 z_3 + \ldots + a_n z_n + \varepsilon \qquad (1)$$

with the line $X_{\min} = Y$ for different characteristics, z_n. The error term, ε, is assumed to satisfy the classical assumptions for simplicity. For this study, we assume that X_{min} represents the answer to questions about the minimum income or spending dollar amount that the respondent thinks is needed for the family to make ends meet. And Y is total household before-tax money income. This approach assumes that minimum income or spending, denoted by X_{min}, is equal to actual income: $X_{\min} = Y$; however, minimum income and minimum spending are not assumed to be equal.

We assume a linear relationship between the minimum reported, either income or spending, and actual income. A plot of minimum income and minimum spending by total before-tax money income indicates that a log-linear model fits the data when X_{min} represents the answer to a question about minimum income or spending fairly well and this finding is consistent with

the work of others (e.g., De Vos and Garner 1991; Garner and De Vos 1995; Kapteyn et al. 1988; Van den Bosch 2001).

The coefficient a_1 has been referred to as preference drift (Van Praag 1971), as it depicts the trend that preferences drift upward with income. The notion here is that respondents accustomed to a higher standard of living, everything else being the same, will have higher aspirations and therefore will report higher estimates of their minimum income or spending requirements. As the model is specified in a double-log formulation, the coefficients will lie between zero and one. When the preference drift equals zero, the subjective threshold becomes an absolute threshold. When the coefficient equals one, the threshold becomes fully relative; in this case, every increase in actual income results in the same percentage increase in what is perceived to be the subjective threshold. When the coefficient is between zero and one, the interpretation is that as people get richer they set the necessary minimum higher, but do not raise it (in percentage terms) as much as their income goes up (see Milanovic and Jovanovic 1999 for a recent discussion concerning preference drift).

Based on earlier work using U.S. data (e.g., De Vos and Garner 1991; Garner and De Vos 1995; Garner and Short 2003a), we hypothesize that the coefficient on income will be closer to zero than to one for the MIQ model. Given that the MSQ refers to a specific set of commodities, we further hypothesize that the income coefficient in the MSQ model will be less than the income coefficient in the MIQ model; thereby resulting in thresholds that are more absolute than relative.

An underlying assumption for the intersection approach to estimate minimum income and spending-based thresholds is that only those who have income that is at the minimum know what the “true” minimum is. This relationship is presented in Figure 1. Since that minimum is not

known for a society *a priori*, data are collected from a sample representing the whole population. The predicted threshold based on equation (1) and the intersection of $X_{\min} = Y$ is:

$$X^*(z_2 \ldots z_n) = \exp\left[\frac{a_0 + a_2 z_2 + \ldots + a_n z_n}{1 - a_1}\right]. \qquad (2)$$

Different thresholds are possible for given values of z_n. Note: income does not enter the prediction equation; only the coefficient of income, a_1, enters. Alternative thresholds for different family types and for different regions of the country, for example, could be derived using the same intersection approach (see Figure 2 for an example).

Figure 1. The Subjective Threshold Based on the Regression Intersection Approach

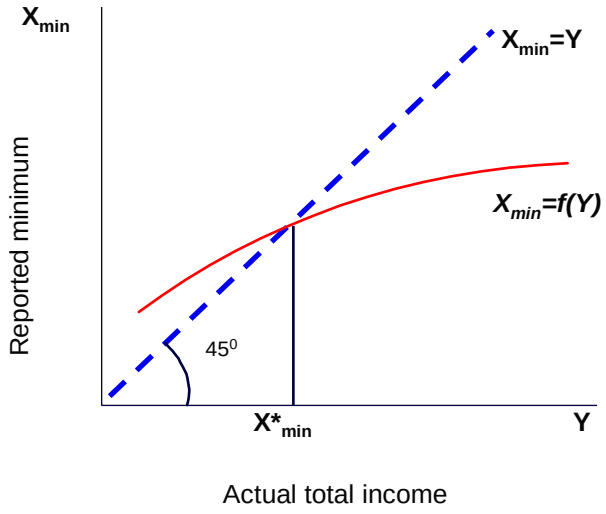
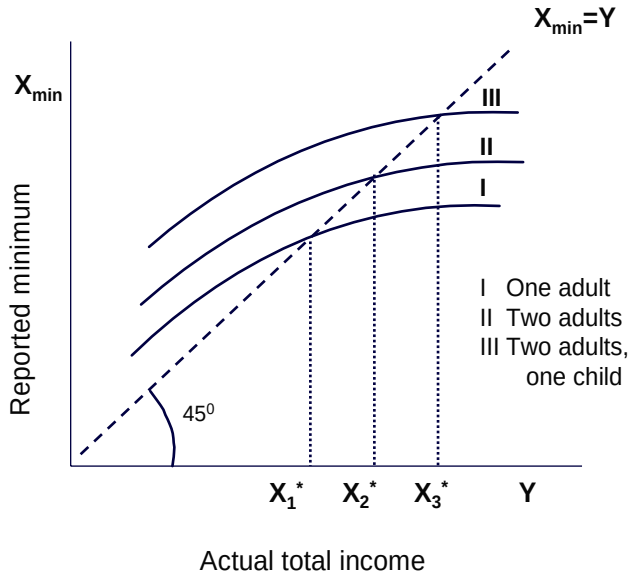


Figure 2. Subjective Thresholds for Different Family Types



There are different possible choices regarding the error term, ε, as it is not observable. The assumption here is not to include an error term when producing the threshold with the result being a median prediction (see Garner and Short 2003a for a discussion of this issue.) Kapteyn et al. (1988) used the median prediction equation (2) as did other researchers using U.S. data (Colasanto et al. 1984, Danziger et al. 1984; De Vos and Garner 1991; Garner and De Vos 1995; Garner and Short 2003a,b). The median is chosen as the measure of central tendency for the subjective threshold as it is more robust to outliers than the mean and the median is the midpoint of the distribution, thus, making it perhaps more relevant for poverty discussions than the mean.

Although most minimum income and spending data to date are for cross-sections, this approach was originally designed for use with panel data (Kapteyn et al. 1988). By using panel data, it would be possible to test whether people gravitate toward some true minimum over time. It is expected that respondents who are above the true minimum would find that over time they

have a better idea of what their true minimum is and would respond accordingly. For those below the true minimum, over time they would realize that they are actually underestimating their true income or spending needs.

Another assumption underlying the intersection approach is that every respondent gives the same meaning to the wording used in the MIQ and MSQ. In other words, the expressions "necessary to make ends meet" and "basic necessities," for example, are assumed to have the same welfare connotation for all respondents. Variations in responses would be expected when households have differing needs, for example, a family of two adults would be expected to report lower minimum income or spending needs than a family of three adults. Differences in responses could also result when they face different prices, for example, if prices for necessary commodities were lower in the South than in the Northeast. The regression intersection approach allows one to control for differences in responses due to reference group effects. Differences due to differing needs and prices would remain. Basing thresholds on these remaining differences would be desirable.

The approach followed in this study is only one among others that has been used by researchers when estimating thresholds based on personal assessments of individuals in households or families. Another often used approach is to estimate a threshold directly, without controlling for any other characteristics than the one for which the thresholds are being derived (e.g., number of persons in the household), using the arithmetic average or median. Such approaches have been employed by Gordon et al. (2000), Middleton (2000), Saunders and Matheson (1992), Townsend and Gordon (1991, 1996), and Townsend et al. (1997). The Gallup Organization has collected data for "get-along" standards and poverty lines for a family of four

(husband, wife, and two children) for the U.S.; means and medians have been produced using these data (see Vaughan 2004).[11]

In many of the earliest models using the intersection approach, family size was the only other explanatory variable included in the model. However, since the work of Hagenaars (1986), additional explanatory variables have been included in the model and hence could be used to further differentiate the subjective thresholds. Family size has entered the regression models as the log(family size), log(number of adults) plus the log(number of children), dummy variables representing the numbers of adults and children in combination with their ages and/or their rank in the family,[12] or as a series of dummy variables representing more differentiated household compositions. Additional variables have included reference person characteristics as well as variables that reflect geographic variations. The model used in the current study differs from the earlier ones of De Vos and Garner (1991), Garner and De Vos (1995) and Garner and Short (2003a) in that primary effects, without interaction terms, are examined. The result is a simpler model specification with the potential problems associated with multicollinearity present in earlier models lessened.

The primary household characteristic expected to influence responses to the MIQ and MSQ is family size and is most often considered a cost variable. Family size enters the model as log(adults+1) plus the log(number of children+1). In addition to needs represented by the presence of adults and children, needs also differ for households based on age and when someone is disabled or self-employed. These differences are accounted for in the model using the characteristics of the reference person as a proxy for the needs of the household as a whole.

[11] The Gallup poverty question is: "People who have income below a certain level can be considered poor. That level is called the "poverty line." What amount of weekly income would you use as a poverty line for a family of four (husband, wife, and two children) in this community?" The Gallup get-along question is: "What is the smallest amount of money a family of four (husband, wife and two children) needs each week to get along in this community?" The get-along question was asked in Gallup Polls from 1947-89 and again in 1992. The Gallup poverty question was asked in 1989 and 1992 (Vaughan 1993, 2004; Citro and Michael 1995).

[12] See Van den Bosch (2001) for an example with the ranks of the children entering the model.

Other variables could also affect responses, but not necessarily reflect differences in needs or costs. Race, ethnicity, and education enter the model to account for potential differences in responses due to culture, habits, and reference groups. Differences in the financial needs of households can result depending on whether they own their home or not. Homeowners may consider their out-of-pocket expenses as greater than those of renters and also potentially more volatile. Differences in cost of living may be expected between different geographic regions and between different areas based on urbanization. Dummy variables are included in the model to allow for these differences.

In constructing the model it is useful to consider a distinction between cost variables and reference group variables. While it is not possible to determine without question if a variable is strictly a cost or reference variable, in general, a cost variable is one that influences the costs that a household faces when maximizing its standard of living and reference variables influence one's aspirations (Van den Bosch 2001). This distinction is important in the production of poverty thresholds from these estimates.

2.4 Production of Thresholds

For this study, we produce thresholds based on two approaches. First we produce the threshold for each household and then average the thresholds using population weights. Thresholds are then differentiated by family size and age of the reference person, household composition according to the number of adults and children and the age of the reference person, housing tenure, region, and degree of urbanization. In this way we average out reference group effects such as those based on education, race, ethnicity, etc. We focus on family size as the thresholds have most often been used to compare differences across family compositions.[13]

[13] Equivalence scales implicit in subjective thresholds have been produced often and, in some cases, compared to those based on other approaches (e.g., Garner and De Vos 1995; Garner and Short 2003a; Pan 2003; Bishop, Luo, and Pan 2004; Van den Bosch 2001).

Housing tenure is of interest since we examine the impact of defining housing costs with the value of the flow of owned housing services by rental equivalence for owners. Geography is of interest as differences in costs of living could be reflected in the thresholds but so also could other differences in the composition of the geographic areas in terms of households. This approach has been followed previously by various researchers (e.g., De Vos and Garner 1991; Garner and De Vos 1995; Garner and Short 2003a; Gustafsson, Shi, and Sato 2002, forthcoming; Milanovic and Jovanovic 1999).

The second approach entails producing a set of thresholds differentiated by the same variables but holding the values of the other socio-demographic variables at their weighted national averages or some other set of values. Hagenaars (1986) and Van den Bosch (2001) used weighted national averages for the non-differentiated variables in the production of subjective thresholds, while Kapteyn et al. (1985) produced thresholds for a "poor" reference group and for a "median" reference group.[14] Van den Bosch (2001) notes that the distinction between cost and reference variables is fairly clear theoretically but that theory "does not provide straightforward guidance on the problem of which variables used in the models … are to be regarded as cost variables and which ones as reference variables" (p. 222). He acknowledges that many empirical variables can have both cost and reference effects.

As noted by Hagenaars (1986), which subjective line should be used depends on the political choice of differentiating characteristics that a society makes. She noted that when averaging over certain characteristics, errors will be made. "…people who feel poor according to the poverty [subjective][15] line differentiated for their type may be defined as non-poor according to the average poverty [subjective] line (type II error), and people who were not poor according

[14] Reported by Van den Bosch (2001).
[15] We refer to the lines as "subjective" rather than "poverty" lines.

to their type specific poverty line may be defined as poor (type I error)" (Hagenaars 1986, p. 108). She further notes that, (paraphrased), "If in a democratic process, the majority of the population has characteristics that are the same as those at the national mean, the decision may be made to average all over characteristics to produce the threshold. Minorities that have characteristics different from the national mean may as a result either benefit from a resulting type II error, or suffer from a type I error" (p. 108).

2.5 Application to U.S. Consumer Expenditure Survey Data

SIPP data are used to estimate two relationships: (1) minimum income with total before-tax money income; and (2) minimum spending with total before-tax household income. The SIPP estimated coefficients from equation (1) are inputs into equation (2), along with the demographic characteristics data from the CE, to produce CE based MIQ and MSQ thresholds. Due to the intersection of $X_{\min} = Y$, only the coefficient of income enters the prediction equation and not income (see equation 2).

Two assumptions underlie the approach of applying the SIPP-estimated coefficients to the CE sample to derive MIQ and MSQ thresholds for the CE population. First, the SIPP and CE samples are drawn from the same U.S. population and there is no bias resulting from systematic attrition in SIPP (see Garner and Short 2003a for a discussion concerning this issue, and McArthur and Short 1985). Second, the relationships between minimum income and minimum spending and each of the explanatory variables in the MIQ and MSQ models are the same in both samples.

Total expenditures outlays are examined against the MIQ and MSQ thresholds and the official poverty thresholds. We start with the definition of total expenditure outlays used by the Bureau of Labor Statistics and edit it to not include expenditures that are only included in the

fifth interview. These include those for finance charges (excluding those on mortgages and financed vehicles), occupational expenses, and cash contributions to organizations and non-CU members. This was done in order that all consumer units would have the opportunity to have the same expenditures as every other consumer unit each quarter. Included in total expenditure outlays are those for the following: food and beverages at home and away from home including meals as pay; housing including shelter, utilities, household operations and household furnishings and equipment, and rent as pay; apparel and services; transportation; health; entertainment; personal care; reading; education; tobacco; miscellaneous such as legal fees and banking services; life and other personal insurance; and contributions for retirement and pension plans including Social Security. Total expenditure outlays differ from the BLS publication definition in that the outlays for mortgage principle payments for housing and other property are included in outlays, along with out-of-pocket payments for vehicles and entertainment items.[16]

An additional measure of total expenditures is used to compare to the MIQ and MSQ thresholds, one based on the value of the flow of services from owner-occupied housing. Such a measure enables us to examine the impact of housing needs based on the value of the flow of services from owned housing, defined as rental equivalence, as compared to actual spending outlays. Out-of-pocket expenditures for shelter that is the primary residence and owned by the consumer unit were replaced by the value of the flow of services from this housing.[17] This value was provided by consumer units in the CE and defined as rental equivalence by the BLS. The rental equivalence question from the CE interview follows:

[16] The total expenditure outlays definition can be reproduced using the CE internal data base. In this study, ETOTAL is the same as in the BLS data base with two exceptions: it does not include expenditures that are only collected in the fifth interview like those for some miscellaneous items (zmisceL2) or for cash contributions (zcashctb). For this study, ETOTAL is defined as the sum of zfoodhom, zfoodxmp, zalcbevs, ehousing, zapparel, etranprt, zhealth, eentrmnt, zpercare, zreading, zeducatn, ztobacco, zmiscel1, emiscmrt, zfoodmap, zrentrap, and zperlins.
[17] The BLS internal MTAB data file variable UCC "910050" represents rental equivalence. The file values need to be multiplied by 4 to obtain a monthly value and by 12 to obtain a quarterly value.

If someone were to rent your home today, how much do you think it would rent for monthly, unfurnished and without utilities?

This question was asked of all consumer units who lived in their own house at the time of the interview or those who lived in such housing earlier during the quarterly interview period. For this study, consumer units who were living in housing that they owned at the time of the interview are assumed to have lived in that housing for the entire quarter; and the quarterly rental equivalence is assumed to reflect their shelter costs for the entire period. The sum of paid rent and an estimate of rental equivalence are assumed to be the shelter costs of consumer units who were renters at the time of the interview, but who lived in housing that they owned during an earlier period.[18] Using rental equivalence, rather than out-of-pocket expenditures or outlays, suggests that when people answer the MSQ they are thinking about the cost of shelter consumption, in other words, how much they would need to rent their own home rather than what they would actually have to spend for the housing they current live in and own. Assuming rental equivalence for the shelter costs of owner occupants in a poverty threshold is consistent with the National Academy of Sciences (NAS) Panel on Poverty and Family Assistance's recommendation.[19]

While all items that one purchases could be considered "essential," we compared actual spending on selected commodities to the CE based derived MSQ thresholds. Each bundle is presented in the table below. The smallest bundle refers to the majority of items listed in the MSQ with: food, clothing, and shelter for primary residence. We include utilities as part of

[18] Renters with positive rental expenditures (CE variable ZRENTXRP>) and who also reported positive owned housing expenditures (ZOWNDWLL>0) represented only 0.5 percent of the sample. There were no renters with zero rental expenditures but positive owner expenditures. Owners with positive rental and owner expenditures represented about 0.4 percent of the sample. Thus the impact of assigning rental equivalence to renters for only one month is likely to not affect the results significantly. However, for current renters living in their owned housing for more than one month prior to becoming a renter, their shelter costs will be underestimated in the outlays with rental equivalence comparisons. For owners who lived in rental housing prior to becoming a homeowner, their shelter costs may be overestimated. Given the way that the CE rental equivalence data is recorded in the data base, we were not able to make any finer distinctions than these.

[19] For example, see Garner et al. (1998) who produced experimental poverty thresholds that incorporated rental equivalence.

shelter for this exercise. These commodities are the same as those recommended by the NAS Panel upon which a new poverty threshold would be based (Citro and Michael 1995, p.6)[20].

Bundle One	Outlays for food and non-alcoholic beverages at home and away from home, shelter and utilities out-of-pocket expenses for primary residence, and apparel (food and rent as pay are not included)
Bundle One plus Health	Bundle One plus health care.
Bundle Two	Bundle One plus half of out-of-pocket transportation expenses and personal care
Bundle Three	Bundle Two plus expenditures for education and reading materials
Bundle Four	Bundle Three plus expenditures for household operations and household furnishings and equipment

The second bundle includes health care as a basic necessity. This follows the procedure followed by Short and Garner (2002) and Banthin et al. (2001). In contrast, the NAS Panel subtracted health care expenses from the resource side rather than including these in the basic bundle that served as the basis of the recommended poverty threshold.

The commodities identified for inclusion in bundles two and three are those used by the NAS Panel for the estimation of lower and higher multipliers used to derive the recommended threshold (Citro and Michael, 1995, Table 2-6, footnotes a and b; see Garner et al. 1998 for a replication). These bundles were selected by the NAS Panel as examples of what might be included in smaller and larger bundles, not what specifically would be included. Bundle two includes all those in bundle one plus one half of out-of-pocket transportation expenses and personal care. Transportation includes the purchase of vehicles, fuel, finance charges, maintenance and repairs, vehicle insurance, vehicle rental licenses, and public transportation. Personal care includes personal care services and appliances. Bundle three includes all of bundle

[20] For the NAS Panel report, the BLS publication definitions were used to define the bundles, not the out-of-pocket approach. In addition, food and rent as pay were included in the bundles in food and shelter respectively. Short and Garner (2002) have not included food and rent as pay in their estimations of the experimental poverty thresholds since these could not be accounted for on the resource side.

two plus education and reading materials. Education includes school books, supplies, equipment, tuition and other school expenses including rentals. Reading includes newspapers, magazines, books, encyclopedias and other reference books. As a more expanded bundle for this study, the fourth includes those in bundle three plus those for household operations and household furnishings and equipment. Included are domestic services, babysitting and day care, and household furnishings and equipment. Household furnishings and equipment includes household textiles, furniture, floor coverings, appliances, house wares, and other household equipment. For the consumption expenditure based comparisons, rental equivalence replaces the shelter out-of-pocket expenditures for owner occupants for the comparison to the thresholds.

3. RESULTS

Sample statistics, regression results, thresholds, and poverty rates are presented in this section. All results are assumed to be for 1995 although data are from the last half of the year. Table 3 reveals that the SIPP and CE weighted samples are quite similar according to the distributions of households and consumer units by the selected characteristics. However there are a few differences. The CE sample is slightly older, has fewer units with reference persons who have more than a high school education, has fewer units with self-employed reference persons, has slightly fewer adults on average, and has more units living in rural areas. The differences are not large but they are statistically significantly different.[21] Insofar as the SIPP and CE samples

[21] Standard errors of the means were produced to account for the complex sample design. For the SIPP, SAS PROC SURVEYMEANS with a stratum and cluster variable and household weights was used to produce the standard errors. Standard errors of the means were produced for the CE using a method of balanced half sampling. In this method, a number of replicate subsamples were formed from the set of sampled consumer units. Each replicate subsample is approximately half the size of the original sample and was constructed to reflect the stratification and clustering used in the survey sampling. Then the standard error of the mean was estimated based on the means of the subsamples (see *BLS Handbook of Methods* (BLS 1997a, p.165 for details).

Table 3. Weighted Sample Means and Standard Errors of Variables Included in SIPP Regressions of Ln (X_{min}) and in Prediction Equation for the CE

	U.S. MIQ 1995 (n=6332)		U.S. MSQ 1995 (n=6292)		U.S. CE 1995Q4-1996Q1 (n=9397)			
	Mean	Standard Error of Mean	Mean	Standard Error of Mean	Mean	Standard Error of Mean	CE and SIPP MIQ Weighted Samples Differ	CE and SIPP MSQ Weighted Samples Differ
Annualized Reported Minimum Income	$28,938	$289	na	na	na	na		
Annualized Reported Minimum Spending	na	na	$21,066	$192	na	na		
Annualized Total Expenditure Outlays	na	na	na	na	$30,417	$449		
Annualized Total Expenditures with Rental Equivalence[1]	na	na	na	na	$31,537	$425		
Annualized Before Tax Money Income	$42,344	$730	$43,932	$1,224	na	na		
Quarterly Reported Minimum Income	$7,234	$72	na	na	na	na		
Quarterly Reported Minimum Spending	na	na	$5,267	$48	na	na		
Quarterly Total Expenditure Outlays	na	na	na	na	$7,604	$112		
Quarterly Total Expenditures with Rental Equivalence[1]	na	na	na	na	$7,884	$106		
Quarterly Before Tax Money Income	$10,586	$182	$10,983	$306	na	na		
Reference Person								
Age	48.082	0.281	47.735	0.233	48.248	0.205		[b]
Age[2]	2599.0	29.818	2558.9	23.997	2632.560	21.141		[a]
Male	0.628	0.007	0.638	0.007	0.622	0.013		
Black	0.117	0.005	0.113	0.005	0.116	0.004		
Hispanic	0.092	0.005	0.083	0.006	0.078	0.007		
High School Grad	0.327	0.006	0.336	0.006	0.332	0.008		
> High School	0.499	0.008	0.497	0.007	0.458	0.010	[a]	[a]
Work Disabled	0.051	0.003	0.051	0.003	0.051	0.003		
Self-employed	0.073	0.003	0.077	0.003	0.056	0.003	[a]	[a]
Ln(1+Number of adults)	1.012	0.004	1.019	0.004	1.008	0.004		[b]
Number of adults	1.848	0.011	1.866	0.011	1.842	0.013		
Ln(1+Number of children <18)	0.381	0.008	0.391	0.008	0.375	0.007		
Number of children <18	0.720	0.016	0.741	0.018	0.704	0.015		
Own home	0.640	0.008	0.638	0.008	0.646	0.006		
Northeast	0.201	0.008	0.199	0.007	0.197	0.006		
Midwest	0.242	0.008	0.249	0.008	0.247	0.006		
West	0.224	0.009	0.206	0.008	0.209	0.008		
City	0.389	0.011	0.381	0.011	0.382	0.013		
Rural	0.238	0.013	0.242	0.010	0.266	0.011	[b]	

[1]Rental equivalence of primary residence replaced for outlays for owners; outlay expenditures for other properties.
[a] Statistically significant at the p=0.05 level.
[b] Statistically significant at the p=0.10 level.
SIPP standard errors produced using SAS Proc Surveymeans. CE standard errors produced using the balanced repeated replication method of variance estimation. Consumer units living in college or university housing excluded from CE sample; represented 1.7% of original sample or 164 cases. Source: 1993 SIPP-9th wave and Consumer Expenditure Survey data 1995Q4 and 1996Q1.

are different in terms of their population representativeness, the assumption that the relationships implied by the MIQ and MSQ regression models are similar may be wrong. The results in Table 3 suggest, however, that applying the SIPP-based model coefficients to the CE is a useful exercise.

Regression coefficients are presented in Table 4 for the MIQ and MSQ using the SIPP data.[22] These results reveal that the model fits the MIQ data better than the MSQ data. The

Table 4. Coefficients and Standard Errors from SIPP Minimum Income and Spending Regressions
(unweighted regressions)

	U.S. MIQ 1995 (n=6332)		U.S. MSQ 1995 (n=6292)		
	Coefficient	Standard Error	Coefficient	Standard Error	MIQ and MSQ Coefficients Differ
Intercept	6.359 [a]	0.121	6.767 [a]	0.123	[a]
Ln(Y)	0.273 [a]	0.012	0.201 [a]	0.012	[a]
Reference Person					
Age [note]	0.228 [a]	0.031	0.202 [a]	0.031	
Age^2 [note]	-0.003 [a]	0.000	-0.002 [a]	0.000	
Male	0.107 [a]	0.018	0.078 [a]	0.018	
Black	0.035	0.029	-0.047	0.029	[a]
Hispanic	0.001	0.032	-0.011	0.033	
High School Grad	0.101 [a]	0.025	0.056 [a]	0.026	
> High School	0.281 [a]	0.026	0.193 [a]	0.026	[a]
Work Disabled	-0.157 [a]	0.040	-0.094 [a]	0.040	
Self-employed	0.015	0.031	0.080 [a]	0.030	
Ln(1+Number of adults)	0.075 [a]	0.037	0.126 [a]	0.038	
Ln(1+Number of children <18)	0.114 [a]	0.017	0.171 [a]	0.017	[a]
Own Home	0.121 [a]	0.020	0.127 [a]	0.020	
Northeast	0.172 [a]	0.023	0.165 [a]	0.023	
Midwest	-0.030	0.021	-0.013	0.021	
West	0.044 [a]	0.023	0.046 [a]	0.023	
City	0.025	0.018	0.013	0.019	
Rural	-0.077 [a]	0.021	-0.111 [a]	0.021	
Adjusted R^2	0.326		0.234		

[a] Statistically significant at the p=0.05 level

[b] Statistically significant at the p=0.10 level

Note: Coefficent and standard error for Age have been multiplied by 10 for presentation; coefficient and standard error for Age^2 have been multiplied by 10 for presentation. Source: 1993 Survey of Income and Program Participation (SIPP), 9th wave, and calculations by Garner and Short (2003b).

[22] Ordinary least squares regression is used for the estimation.

adjusted R^2s are 0.326 and 0.234 respectively. This simpler model fits the data as well as the earlier model (Garner and Short 2003a) with a more complex specification of characteristics (MIQ R^2=0.325 and the MSQ R^2=0.235).

Responses to the MIQ are more sensitive to difference in income than are responses to the MSQ as revealed by the Ln(Y) coefficient: 0.273 and 0.201. Minimum spending increases less with actual income than does minimum income. The coefficients from the Garner and Short (2003a) models reveal similar results: 0.267 and 0.205. As noted earlier, the closer the value of the income coefficient to zero, the more absolute the resulting threshold would be. As hypothesized, a MSQ based threshold is more absolute than one based on the MIQ. The earlier work of De Vos and Garner (1991), using CE data and responses to the MIQ in 1982, produced an income coefficient of 0.43 indicating that the subjective threshold, based on 1982 CE data, was less absolute than the threshold based on the 1995 SIPP data. De Vos and Garner (1991) reported an income coefficient of 0.552 for the Netherlands in 1983 which is in the range of the value, 0.54, reported by Hagenaars and Van Praag (1985, p. 151) for a set of Western European countries. In contrast, Milanovic and Jovanovic (1999) reported preference drift of 0.14 to 0.23 for 1993 to 1996 Russia depending on the MIQ model specification. Lower levels of preference drift have also been reported for China. Gustafsson, Shi, and Sato (2002, forthcoming) reported preference drift coefficients ranging from 0.27 to 0.40 using income and responses to a MSQ for 1999 China. These results are similar to those reported by Pan (2003) and Bishop, Luo, and Pan (2004) for 1995 China, but using consumption expenditures rather than income, and another version of the MSQ rather than the MIQ with coefficients from 0.21 to 0.27.

As expected, needs are greater as the number of children increases. They are also greater with increases in the number of adults in the household, age of the reference person, for owners,

and for households living in what are considered higher costs areas (the Northeast and West). Higher education of the reference person and whether the reference person is a man also contribute to greater needs being reported, perhaps reflecting reference groups effects as noted by Hagenaars (1986). When the reference person is not working due to a disability, the income and spending needs are less based on these MIS and MSQ results. Being self-employed significantly increases one's spending needs but not income needs.

Average total before-tax money incomes for the MIQ and MSQ weighted household samples are presented in Table 5, along with official poverty thresholds and the estimated MIQ and MSQ thresholds. Households were assigned official thresholds based on the age of the reference person in single and couple families, and the numbers of people and children for other households. The SIPP based MIQ and MSQ thresholds are midway between average before-tax money income and the official poverty thresholds.

Table 5. Mean Quarterly and Annualized SIPP Before Tax Money Income, and Estimated Median Minimum Value Thresholds *(SIPP Population Weighted Households)*

	Quarterly	Annual Estimate
Before Tax Money Income-MIQ Sample	$10,586	$42,344
Before Tax Money Income-MSQ Sample	10,983	43,932
Allowing all characteristics to vary		
MIQ Theshold	$5,451	$21,804
MSQ Theshold	3,755	15,018
Characteristics set at national means		
MIQ Theshold	$5,139	$20,556
MSQ Theshold	3,617	14,469
Official based on MIQ Weighted Sample[a]	$2,839	$11,355
Official based on MSQ Weighted Sample[a]	2,865	11,460

[a]Official poverty thresholds are for families but are applied to SIPP households.
Source: 1993 SIPP-9th wave and Consumer Expenditure Survey data 1995Q4 and 1996Q1.

Table 6 includes average expenditure outlays with and without the adjustment for rental equivalence, and predicted MIQ and MSQ thresholds based on the SIPP coefficients. Note that the expenditures with rental equivalence are only slightly higher with the adjustment as compared to without the adjustment.

Table 6. Mean Quarterly and Annualized CE Outlays, and Estimated Median Minimum Value Thresholds *(CE Population Weighted Consumer Units)*

	Quarterly	Annual Estimate
Total Expenditure Outlays	$7,604	$30,417
Bundle One	3,733	14,930
Bundle One plus Health	4,150	16,599
Bundle Two	4,457	17,827
Bundle Three	4,624	18,496
Bundle Four	5,043	20,174
Total Expenditure Outlays Adjusted for Rental Equivalence	$7,884	$31,537
Bundle One	4,013	16,050
Bundle One plus Health	4,430	17,719
Bundle Two	4,737	18,946
Bundle Three	4,904	19,616
Bundle Four	5,323	21,294
Allowing all characteristics to vary		
MIQ Thresholds Using SIPP Coefficients	$5,287	$21,147
MSQ Thresholds Using SIPP Coefficients	3,649	14,595
Characteristics set at national means		
MIQ Thresholds Using SIPP Coefficients	$4,991	$19,965
MSQ Thresholds Using SIPP Coefficients	3,521	14,085
Official[a]	$2,882	$11,527

[a]Official poverty thresholds are for families but are applied to SIPP households.
Bundle One: outlays for food at home and away from home, shelter expenses for primary residence, utilities, apparel.
Bundle One plus Health: outlays for food at home and away from home, shelter expenses for primary residence, utilities, apparel, and health care.
Bundle Two: Bundle One plus half of transportation expenses, personal care.
Bundle Three: Bundle Two plus expenditures for education and reading materials.
Bundle Four: Bundle Three plus expenditures for household operations and household furnishings and equipment.
Source: Consumer Expenditure Survey data 1995Q4 and 1996Q1.

The MSQ thresholds, for both surveys, are about 69-70 percent of the MIQ thresholds using the two approaches for producing the thresholds. These are slightly higher than the ratios

found in the work of Morissette and Poulin (1991) for Canada (58-65 percent for household sizes of one to six people). Vaughan (1993, 2004) reports that the average Gallup poverty threshold was 71.8 percent of the Gallup get-along threshold in 1989. The MIQ thresholds are about 90 percent higher than the official poverty threshold while the MSQ are only about 30 percent higher.

Official thresholds for the SIPP and CE weighted samples are produced for comparison in Tables 5 and 6. As each household in the SIPP and each consumer unit in the CE are assigned their own thresholds, average thresholds across the populations differ from the thresholds published by the Census Bureau. The average official thresholds are quite similar for the CE and SIPP reflecting that the number of children and adults in the two weighted samples are very similar. This is not surprising as the CE and SIPP use the CPS as control totals. Differences are likely due to the fact that the data are collected from consumer units rather than households in the CE.[23] For this study also all students living away from home are not included in the CE weighted sample but these students are included in the SIPP weighted sample as part of the parent's household. The ratios of the CE MIQ to SIPP MIQ thresholds and of the CE MSQ to SIPP MSQ threshold are 1.03, again reflections of the slight differences in the samples.

CE total expenditure outlays are on average 72 percent of before-tax money income from the SIPP. This suggests, on average, a difference of about $12,000 annually over and above what is already included in total expenditures. Bundle one (food, clothing, and shelter and utilities for primary residence) expenditures represent about half of all CE expenditure outlays and about one-third of SIPP before-tax money income. The share of total expenditure outlays increases to about 55 percent when health care is added to bundle one, and the share of income to approximately 40 percent. Adjusting expenditure outlays by rental equivalence for owner

[23] About 96 percent of all consumer units were also households with no other consumer units present.

occupants increases the percentage share of total outlays to just about 50 percent and to 74 percent of SIPP before-tax money income.

The CE MSQ threshold looks like bundle one and the CE MIQ threshold looks like bundle four with the rental equivalence adjustment. The CE MSQ threshold is not statistically significantly different from expenditure outlays for bundle one at the 0.05 level, and the MIQ threshold is not significantly different from bundle four expenditures with the adjustment.[24]

The overall estimates presented in Table 6 may be misleading, however, for some demographic subgroups. Table 7 includes quarterly medians of CE based MIQ and MSQ thresholds and mean expenditure outlays for all items and for the various bundles for selected demographic groups. Table 8 includes the means based on outlays adjusted for rental equivalence. These results indicate that certain subgroups have expenditures that are lower than the MSQ thresholds for their groups. This means, that on average, their spending is less than what they need based on their personal assessments of minimum financial needs. Relating this to Figure 1, these consumer units would be to the left of the intersection point of household before-tax money income and the minimums reported. Bundle one expenditure outlays are less than the MSQ thresholds for one-person consumer units aged 65 or younger, one- and two-person elderly consumer units, consumer units with seven or more people, single parents, renters, and for consumer units living in the Northeast, and very slightly in the South.

[24] Standard errors of the predicted thresholds were produced using the same procedures used to produce the standard errors of the sample means, accounting for the complex sample design of the SIPP. But the sampling variance in the regression coefficients was not accounted for in the estimation of the standard errors of the thresholds.

Table 7. Quarterly Estimated Median Minimum Thresholds and Mean Consumer Expenditure Outlays *(CE Population Weighted Consumer Units)*

Consumer Unit Size	Characteristics Allowed to Vary		Other Characteristics Set to Means							
	Median MIQ Threshold	Median MSQ Threshold	Median MIQ Threshold	Median MSQ Threshold	Total Expenditure Outlays	Bundle One	Bundle One plus Health	Bundle Two	Bundle Three	Bundle Four
1 person	$4,321	$2,966	$4,555	$3,092	$4,618	$2,399	$2,686	$2,783	$2,884	$3,097
one person, <65	*5,007*	*3,183*	*4,917*	*3,184*	*5,352*	*2,697*	*2,890*	*3,162*	*3,297*	*3,552*
one person, >=65	*3,029*	*2,558*	*3,438*	*2,775*	*3,236*	*1,838*	*2,300*	*2,070*	*2,107*	*2,239*
2 persons	4,922	3,432	4,779	3,322	7,732	3,602	4,112	4,374	4,517	4,961
2 people, ref. <65	*5,378*	3,560	*5,171*	*3,432*	*8,424*	*3,930*	*4,302*	*4,772*	*4,945*	*5,399*
2 people, ref. >=65	*3,891*	*3,143*	*3,587*	*2,960*	*6,168*	*2,861*	*3,681*	*3,473*	*3,549*	*3,969*
3 people	5,728	3,880	5,193	3,725	8,937	4,389	4,816	5,267	5,482	5,981
4 people	6,498	4,430	5,544	4,075	10,084	4,958	5,436	5,864	6,123	6,760
5 people	6,587	4,603	5,819	4,355	10,035	5,033	5,450	6,099	6,324	6,808
6 people	6,688	4,764	6,024	4,570	9,457	5,087	5,440	6,033	6,269	6,686
7 people or more	6,473	4,936	6,345	4,927	8,629	4,561	4,869	5,440	5,570	6,015
Consumer Unit Composition[a]										
One adult, no children, ref. <65	$5,007	$3,183	$4,917	$3,184	$5,352	$2,697	$2,890	$3,162	$3,297	$3,552
One adult, no child, ref.>=65	3,029	2,558	3,438	2,775	3,236	1,838	2,300	2,070	2,107	2,239
Two adults, no children, ref.<65	5,429	3,592	5,126	3,394	8,886	4,073	4,467	4,976	5,167	5,637
Two adults, no children, ref.>=65	3,894	3,144	3,585	2,958	6,186	2,864	3,687	3,479	3,556	3,979
Three adults, no children	5,332	3,738	4,892	3,449	9,863	4,601	5,203	5,630	5,950	6,378
One adult, one child	4,980	3,328	5,080	3,587	5,180	2,916	3,151	3,331	3,386	3,715
One adult, two children	5,176	3,524	5,415	3,913	4,815	2,944	3,103	3,316	3,354	3,667
Two adults, one child	6,077	4,045	5,296	3,824	9,482	4,639	5,041	5,565	5,768	6,353
Two adults, two children	6,810	4,589	5,646	4,171	10,014	4,959	5,424	5,808	6,013	6,747
Two adults, three children	6,816	4,700	5,907	4,436	10,103	4,993	5,434	6,059	6,186	6,752
Housing Tenure										
Own	$5,593	$3,900	$5,296	$3,725	$8,833	$4,199	$4,728	$5,054	$5,250	$5,761
Rent	4,728	3,191	4,481	3,179	5,364	2,882	3,097	3,368	3,483	3,736
Region of Residence										
Northeast	$6,242	$4,224	$6,019	$4,126	$8,108	$4,194	$4,606	$4,899	$5,138	$5,575
Midwest	4,834	3,422	4,558	3,299	7,596	3,576	3,995	4,340	4,510	4,938
South	4,886	3,364	4,753	3,354	6,978	3,320	3,765	4,017	4,165	4,558
West	5,588	3,848	5,053	3,551	8,180	4,170	4,543	4,908	5,037	5,475
Degree of Urbanization										
City	$5,417	$3,679	$5,246	$3,692	$7,186	$3,694	$4,033	$4,353	$4,525	$4,888
Suburb	5,473	3,839	5,065	3,630	8,258	4,017	4,468	4,768	4,960	5,477
Rural	4,852	3,353	4,558	3,160	7,336	3,410	3,896	4,191	4,320	4,690

[a] These categories represent 88.7 percent of all consumer units.

Source: Consumer Expenditure Survey data are from 1995Q4 and 1996Q1. Coefficients used for CE thresholds are based on data from the 1993 SIPP-9th wave.

Table 8. Quarterly Estimated Median Minimum Thresholds and Mean Consumer Expenditure Outlays with Rental Equivalence Adjustment (*CE Population Weighted Consumer Units)*

	Characteristics Allowed to Vary		Other Characteristics Set to Means							
Consumer Unit Size	**Median MIQ Threshold**	**Median MSQ Threshold**	**Median MIQ Threshold**	**MSQ Threshold**	**Total Expenditures**	**Bundle One**	**Bundle One plus Health**	**Bundle Two**	**Bundle Three**	**Bundle Four**
1 person	$4,321	$2,966	$4,555	$3,092	$4,950	$2,731	$3,018	$3,115	$3,216	$3,429
one person, <65	*5,007*	*3,183*	*4,917*	*3,184*	*5,479*	*2,823*	*3,017*	*3,289*	*3,424*	*3,679*
one person, >=65	*3,029*	*2,558*	*3,438*	*2,775*	*3,955*	*2,556*	*3,018*	*2,788*	*2,825*	*2,958*
2 persons	4,922	3,432	4,779	3,322	8,254	4,124	4,634	4,896	5,039	5,483
2 people, ref. <65	*5,378*	3,560	*5,171*	*3,432*	*8,755*	*4,261*	*4,633*	*5,103*	*5,276*	*5,730*
2 people, ref. >=65	*3,891*	*3,143*	*3,587*	*2,960*	*7,122*	*3,815*	*4,635*	*4,427*	*4,503*	*4,923*
3 people	5,728	3,880	5,193	3,725	9,014	4,466	4,893	5,344	5,558	6,058
4 people	6,498	4,430	5,544	4,075	10,046	4,920	5,398	5,826	6,085	6,722
5 people	6,587	4,603	5,819	4,355	10,215	5,214	5,631	6,280	6,505	6,989
6 people	6,688	4,764	6,024	4,570	9,606	5,237	5,589	6,182	6,419	6,836
7 people or more	6,473	4,936	6,345	4,927	8,941	4,872	5,181	5,752	5,882	6,327
Consumer Unit Composition[a]										
One adult, no children, ref. <65	$5,007	$3,183	$4,917	$3,184	$5,479	$2,823	$3,017	$3,289	$3,424	$3,679
One adult, no child, ref.>=65	3,029	2,558	3,438	2,775	3,955	2,556	3,018	2,788	2,825	2,958
Two adults, no children, ref.<65	5,429	3,592	5,126	3,394	9,235	4,423	4,816	5,326	5,516	5,987
Two adults, no children, ref.>=65	3,894	3,144	3,585	2,958	7,146	3,824	4,647	4,439	4,516	4,938
Three adults, no children	5,332	3,738	4,892	3,449	10,109	4,847	5,448	5,875	6,195	6,623
One adult, one child	4,980	3,328	5,080	3,587	5,390	3,126	3,361	3,541	3,596	3,925
One adult, two children	5,176	3,524	5,415	3,913	5,001	3,130	3,290	3,502	3,541	3,853
Two adults, one child	6,077	4,045	5,296	3,824	9,442	4,599	5,001	5,525	5,728	6,313
Two adults, two children	6,810	4,589	5,646	4,171	9,921	4,866	5,331	5,714	5,919	6,654
Two adults, three children	6,816	4,700	5,907	4,436	10,310	5,200	5,641	6,266	6,392	6,958
Housing Tenure										
Own	$5,593	$3,900	$5,296	$3,725	$9,276	$4,642	$5,170	$5,497	$5,693	$6,204
Rent	4,728	3,191	4,481	3,179	5,348	2,866	3,080	3,352	3,467	3,719
Region of Residence										
Northeast	$6,242	$4,224	$6,019	$4,126	$8,345	$4,431	$4,843	$5,136	$5,375	$5,812
Midwest	4,834	3,422	4,558	3,299	7,833	3,812	4,232	4,577	4,747	5,174
South	4,886	3,364	4,753	3,354	7,335	3,677	4,122	4,374	4,522	4,914
West	5,588	3,848	5,053	3,551	8,424	4,414	4,787	5,152	5,281	5,719
Degree of Urbanization										
City	$5,417	$3,679	$5,246	$3,692	$7,378	$3,886	$4,225	$4,546	$4,717	$5,081
Suburb	5,473	3,839	5,065	3,630	8,559	4,318	4,768	5,069	5,260	5,777
Rural	4,852	3,353	4,558	3,160	7,715	3,788	4,274	4,569	4,698	5,069

[a] These categories represent 88.7 percent of all consumer units.

Source: Consumer Expenditure Survey data are from 1995Q4 and 1996Q1. Coefficients used for CE thresholds are based on data from the 1993 SIPP-9th wave.

With increases in expenditures relative to the MSQ thresholds, consumers are considered to be better off with their spending greater than their assumed needs. When health care is added to the basic bundle of food, clothing, shelter, and utilities, we find that spending now exceeds the MSQ thresholds for most consumer units except people living alone, single parents, and renters.

Additional movements above the thresholds are seen with bundle two expenditures which include transportation and personal care along with food, clothing, shelter and utilities. Nearly all consumer units move above the MSQ threshold with bundle two expenditures.

Two subgroups appear to have particularly high spending needs as reflected by their MSQ thresholds and out-of-pocket expenditures. This means that even with larger bundles of commodities, these consumers have greater needs than are reflected by the earlier bundles that might be considered sufficient. Consumer units composed of one adult with two children do not move above their MSQ threshold until expenditures for bundle four are considered. The group of consumer units who appear the worse off, relative to their personal assessments and derived MSQ thresholds are single-person consumer units aged 65 and over. For none of the commodity bundles do their out-of-pocket expenditures exceed their MSQ threshold.

Replacing out-of-pocket shelter expenditures by the rental equivalence for owner-occupants improves the relative well-being position of most consumer unit subgroups. Of particular interest are single-person consumer units with the reference person greater than or equal to age 65 who now have adjusted expenditures only a couple of dollars short of the first MSQ threshold (with all characteristics allowed to vary) with bundle one expenditures. These results reveal the importance of owner- occupied housing particularly for elderly consumer units.

When deriving poverty thresholds, the NAS Panel (Citro and Michael 1995) recommended that rather than estimating thresholds for different family and household types

directly that a reference family be used and other thresholds would be derived from the expenditures of this family. The NAS Panel recommended that the reference family be composed of two adults with two children, with the reference person less than age 65, and the children less than 18. For a consumer unit with two adults and two children,[25] official thresholds and NAS Panel thresholds are about 85 percent of the MSQ threshold (when the characteristics are allowed to vary) for 1995 (results not shown). The MSQ threshold is 98 percent of the threshold (in 1995 dollars) that was produced by Renwick using a basic needs budget for the comparable family type with one working parent[26] (1998; also see Renwick and Bergmann 1993), 90 percent of the "synthetic" Gallup poverty threshold for four person families,[27] and 80 percent of the Renwick threshold (in 1995 dollars) for the family with two working parents and two children. The MIQ threshold is 96 percent of the "synthetic" Gallup get-along threshold for the four person family. The MIQ threshold is 70 percent of the Prevailing Family Standard,[28] based on the Expert Committee on Family Budgets recommendations (Watts 1980), and reported by Johnson et al. (2001) in 1995 dollars. The MIQ is 79 percent of the mean of several market basket based budgets across the U.S. reported by Bernstein et al. (2000) in 1995 dollars. [29]

Above results are presented for the thresholds and expenditures to help us understand what the MIQ and MSQ might mean to respondents. Next we focus on the use of the thresholds

[25] See Table 7, MIQ and MSQ thresholds compared are those for consumer units with two adults with two children when the characteristics are allowed to vary. Unlike the NAS measure, there is no reference person age restriction for the MIQ and MSQ thresholds for this comparison and the two adults do not need to be married. However, like the NAS measure, children are less than 18 years of age.

[26] Renwick and Bergmann (1993) used a categorical approach to define a poverty budget which they referred to as a basic needs budget (BNB) and produced these for 1989. Renwick (1998) updated the BNBs to 1996. The BNBs are based on adequacy standards.

[27] Information from Vaughan (1993, 2004) is used to used produce "synthetic" Gallup get along and poverty thresholds for 1995. This approach is the same as that followed by Vaughan in his production of synthetic Gallup poverty thresholds for the period 1947-1989 as described in Citro and Michael (1995). The ratio of average Gallup poverty to Gallup get along responses in 1989 (the 1989 data are considered more reliable than the 1992 data according to Citro and Michael (1995)) is 71.8 percent. The average Gallup get along response to median after tax money income for four person families is 69.6 percent over the 1961-1989 period. In order to produce a "synthetic" Gallup get along threshold for 1995, 69.6 percent is multiplied by the 1995 median after-tax money income for four person families ($40,917). The "synthetic" Gallup poverty threshold is derived by multiplying the 1995 get along threshold by 71.8 percent. The "synthetic" get along threshold for 1995 is $28,478 and the synthetic poverty threshold is $20,447. Vaughan (2004) reports a value of $20,458; the difference is due to rounding percentages.

[28] The Prevailing Family Standard would be the median expenditures of married couple families with two children less than 18. Johnson et al. (2001) produced these using an expenditures outlays definition. The budget did not include the payment of income taxes or allocations for savings. The median expenditure for this family in 1995 dollars is $38,789.

[29] These authors identified items that they deemed necessary for a working family to maintain "a safe and decent standard of living" (p.4) and produced a budget for a two-parent two-child family living in Baltimore. Family budgets were also presented for various states, and regions. The simple average of the budgets presented for two-parent two-child families is $34,470 in 1995 dollars.

in identifying households and consumer units who are below the thresholds and who thus would be considered worse off than those at or above the thresholds. In this section we refer to these rates as "poverty" rates. Percentages of consumers units from the CE and households from the SIPP below various thresholds are presented in Tables 9, 10, and 11. These results are based on the thresholds derived from the approach allowing all the characteristics to vary in the prediction of the thresholds. Table 9 includes percentages for the total populations and consumer unit or household size. A further distinction for one and two person units by age of the reference person (less than 65 years or greater than or equal to 65 years) is also presented in Tables 9 and 10. It is important to note that the measures of family resources used for these comparisons are not necessarily consistent with the thresholds and should be interpreted as illustrations only.

The before-tax income measure of resources, compared to the different thresholds, results in lower rates than obtained using the CE data. This is not surprising as the money income measure accounts for savings and income taxes that are not included in the CE expenditures outlays measures. As noted earlier, quarterly data were used for the analysis and thus expenditure outlays not counted in the CE measure used here are those for cash contributions for people outside the consumer unit, occupational expenses, and those associated with miscellaneous expenses like finance charges. Expenditures for these items are only collected in the fifth interview. Using an outlays measure that could be used with quarterly data, results in totals that are lower than what they would have been if a full accounting of all expenditures were included.

Table 9. Percentage of CUs or Households Below Various Thresholds by CU/Household Size: 1995
(CE CU Population Weighted; SIPP Sample Household Population Weighted)

Minimum Income			**CE Expenditure Outlays**		**CE Expenditures with Rental Equivalence Adjustment**	
CU/Household Size	**MIQ**	**Official**	**MIQ**	**Official**	**MIQ**	**Official**
1 person	0.407	0.146	0.581	0.169	0.496	0.114
one person, <65	*0.402*	*0.138*	*0.586*	*0.122*	*0.564*	*0.099*
one person, >=65	*0.416*	*0.161*	*0.572*	*0.257*	*0.369*	*0.142*
2 people	0.188	0.062	0.296	0.074	0.209	0.045
2 people, ref. <65	*0.206*	*0.069*	*0.293*	*0.066*	*0.234*	*0.049*
2 people, ref. >=65	*0.141*	*0.045*	*0.303*	*0.093*	*0.152*	*0.036*
3 people	0.215	0.062	0.298	0.088	0.259	0.072
4 people	0.204	0.084	0.290	0.110	0.272	0.097
5 people	0.220	0.123	0.277	0.166	0.261	0.149
6 people	0.330	0.236	0.347	0.271	0.318	0.264
7 people or more	0.218	0.212	0.420	0.458	0.371	0.412
Total	**0.260**	**0.098**	**0.377**	**0.124**	**0.315**	**0.093**
Minimum Spending						
CU/Household Size	**MSQ**	**Official**	**MSQ**	**Official**	**MSQ**	**Official**
1 person	0.265	0.146	0.352	0.169	0.255	0.114
one person, <65	*0.217*	*0.124*	*0.297*	*0.122*	*0.253*	*0.099*
one person, >=65	*0.354*	*0.188*	*0.455*	*0.257*	*0.257*	*0.142*
2 people	0.098	0.063	0.141	0.074	0.074	0.045
2 people, ref. <65	*0.101*	*0.069*	*0.121*	*0.066*	*0.081*	*0.049*
2 people, ref. >=65	*0.090*	*0.049*	*0.186*	*0.093*	*0.058*	*0.036*
3 people	0.125	0.100	0.123	0.088	0.096	0.072
4 people	0.112	0.099	0.107	0.110	0.097	0.097
5 people	0.091	0.109	0.114	0.166	0.098	0.149
6 people	0.189	0.222	0.202	0.271	0.188	0.264
7 people or more	0.183	0.283	0.241	0.458	0.205	0.412
Total	**0.150**	**0.106**	**0.193**	**0.124**	**0.138**	**0.093**

Source: 1993 SIPP-9th wave and Consumer Expenditure Survey data 1995Q4 and 1996Q1.
Allowing characteristics to vary in prediction model.

The official SIPP-based poverty rate for households is 9.8 percent when based on the MIQ weighted sample using income. The percentage of households below the SIPP MIQ threshold is 26 percent. Higher rates result when quarterly expenditure outlays are used. When

the official poverty thresholds are compared to expenditure outlays, consumer unit poverty is 12.4 percent. MSQ thresholds result in lower poverty for the CE with 19.3 percent of all consumer units having total expenditure outlays below the MSQ threshold. Rental equivalence results in a poverty rate for consumer units in the CE of 13.8 percent for the CE based MSQ thresholds.

The highest rates using the personal assessment based thresholds are for the single elderly in the SIPP (Tables 9). MIQ poverty rate for this group is 41.6 percent and 35.4 for the MSQ. Rates are higher for the CE expenditures outlays measure as compared to the SIPP measure: 57.2 for the MIQ and 45.5 for the MSQ. In contrast, the highest rates when the official poverty thresholds are used are for six-person or seven or more person households in the SIPP and CE weighted samples. SIPP before-tax money income official threshold based rates range from 21.2 percent to 28.3 percent. The CE expenditures outlays official threshold rates are about 46 percent for consumer units with seven or more people.

The presence of a second adult in an elderly household or consumer unit makes an enormous difference in poverty rates (Table 10). Moving from households or consumer units with one elderly person to couple units, with the reference person greater or equal to 65 years of age, reduces poverty using the official poverty threshold from 16-19 percent to about 5 percent. CE expenditure based official threshold poverty falls from 26 percent to about 9 percent when total expenditure outlays are used, and from 14.2 percent to 3.2 percent with rental equivalence. SIPP MIQ and MSQ poverty rates using before-tax money income fall from 42 percent and 35 percent to 14 and 9 percent, respectively. The CE expenditure outlays poverty rate using the MIQ falls from 57 percent to 30 percent and the MSQ based rate falls from 46 percent to 18 percent. As with the official thresholds, rental equivalence makes a substantial difference for

elder consumer units. The MSQ based poverty rate, using the CE, drops from 46 percent to 26 percent for one person elderly consumer units, and from 18 to 6 percent for couple elderly consumer units. These results suggest that a resource measure based more on consumption (e.g., the value of the flow of services from owner-occupied housing) as opposed to spending needs would result in lower subjective poverty rates.

Table 10. Percentage of Single and Couple CUs or Households Below Various Thresholds by Age of Reference Person: 1995 *(CE CU Population Weighted; SIPP Sample Household Population Weighted)*

	SIPP Total Before Tax Money Income				CE Expenditure Outlays			CE Expenditures with Rental Equivalence Adjustment		
CU/Household Size	**MIQ**	**Official (MIQ sample)**	**MSQ**	**Official (MSQ sample)**	**MIQ**	**MSQ**	**Official**	**MIQ**	**MSQ**	**Official**
1 person										
one person, <65	0.402	0.138	0.217	0.124	0.586	0.297	0.122	0.564	0.253	0.099
one person, >=65	0.416	0.161	0.354	0.188	0.572	0.455	0.257	0.369	0.257	0.142
two adults, no children										
2 people, ref. <65	0.149	0.045	0.067	0.038	0.254	0.098	0.047	0.193	0.058	0.030
2 people, ref. >=65	0.140	0.045	0.087	0.046	0.301	0.184	0.089	0.147	0.055	0.032

Allowing characteristics to vary in prediction model.

Implicitly the MIQ and MSQ thresholds are adjusted for differences in the costs of living by region. This is because consumer units would be expected to respond to the MIQ and MSQ based on the costs of living they face in their immediate geographic areas. In contrast, official poverty thresholds are not adjusted for geographic differences in prices. Regions can differ in other ways in addition to costs as well with the impact of these differences reflected in the thresholds and resulting poverty rates.

To show the effect of accounting for differences in region and the use of personal assessment questions for threshold estimation, percentages of consumer units from the CE and

households from the SIPP are presented by region in Table 11 and are compared to official threshold based rates. The first panel in Table 11 reveals the greatest percentage of consumer units and households who are worse off, according to official thresholds, using either income or expenditure outlays, live in the South. Those in the West are marginally worse off than those in the South when rental equivalence is used in the resource measure. In contrast, consumer units and households living in the Northeast are worse off relative to those living in other regions when the MIQ and MSQ thresholds are assumed.

Table 11. Percentage of CUs or Households Below Various Thresholds by Region: 1995
(SIPP Sample Household Population Weighted; CE CU Population Weighted)

	SIPP Total Before Tax Money Income				CE Expenditure Outlays			CE Expenditures with Rental Equivalence Adjustment		
Region	**MIQ**	**Official (MIQ sample)**	**MSQ**	**Official (MSQ sample)**	**MIQ**	**MSQ**	**Official**	**MIQ**	**MSQ**	**Official**
Northeast	0.318	0.103	0.179	0.096	0.459	0.249	0.106	0.399	0.186	0.081
Midwest	0.197	0.078	0.117	0.087	0.306	0.147	0.100	0.245	0.098	0.078
South	0.270	0.118	0.157	0.130	0.379	0.200	0.147	0.311	0.142	0.104
West	0.261	0.088	0.152	0.100	0.381	0.184	0.132	0.324	0.131	0.105
Total	**0.260**	**0.098**	**0.150**	**0.106**	**0.377**	**0.193**	**0.124**	**0.315**	**0.138**	**0.093**

Allowing characteristics to vary in prediction model.

Results by region that reflect differences in cost of living are of particular interest for the development of experimental poverty measures (see Short 2001a, b). Results from this study suggest reasonable outcomes for poverty thresholds that are adjusted to take account of differences in thresholds by geographic area. Higher thresholds are indicated for the Northeast and West based on the results from the CE (Table 7) and SIPP (not shown) using both approaches (i.e., allowing the other model characteristics to vary or holding their values at the

national means) to produce the thresholds, and are also reflected in the published experimental measures that have been accordingly adjusted (see Short 2001a).

4. CONCLUSION

Differences in economic well-being result if one uses expenditure outlays as opposed to income, and also when different well-being thresholds are assumed. Replacing out-of-pocket expenditures with rental equivalence for owner-occupants can also change their economic well-being status. Higher well-being results with SIPP income as opposed to CE expenditure outlays regardless of the threshold: the MIQ, MSQ, or official thresholds. Accounting for the value of housing consumption, rather than housing out-of-pocket expenditures, also increases well-being.

Caution needs to be applied when a consumption-based resource measure such as the one used in this study is compared to income or spending needs thresholds however. Consistency between the threshold and resource measure should be a basic requirement for any well-being or poverty measure. Comparing a consumption-based resource measure, like outlays with the rental equivalence adjustment, to an income or spending needs based measure may not result in a consistent measure of poverty or well-being, depending upon respondents' interpretations of the MIQ and MSQ. If a consumption-based measure is consistent with official poverty thresholds depends on what one considers as the underlying needs concept in official poverty.

Which resource measure is more appropriate to use with the MIQ as opposed to the MSQ is also a question, although results were presented for income and outlays both for illustration purposes. If, as with the MIQ, the focus is on income and the level of income necessary to make ends meet, then income is the more appropriate resource measure. If spending is the focus, then expenditure outlays would be the better measure.

In determining which of the personal assessment questions is best for determining well-being or poverty status, again, the researcher's or policymaker's goal must be clear. Is the goal to produce a threshold that reflects some social minimum standard as might be reflected in a MIQ based threshold? Is the goal to produce a threshold based on a very specific set of commodities and what is spent on these as reflected in a MSQ threshold? Each threshold will provide information about the well-being of a society, but each tells us something different; the two thresholds are not substitutes for each other, just as expenditures are not a substitute for income as a resource measure.

Results in this study clearly support the notion that the MIQ and MSQ reflect different needs, with the MIQ referring to a broader set of needs than the MSQ. The MIQ allows respondents to formulate more freely what is needed to make ends meet while the MSQ directs respondents to think of a certain set of commodities. However, respondents have discretion in defining what they understand constitutes barely adequate food, clothing, shelter, and other necessities along with the level. In comparing expenditure outlays with the MSQ thresholds, we find that on average, consumer units actually spend for food, clothing, shelter, and utilities an amount that differs very little from the median MSQ threshold. Differences by consumer unit characteristics arise, however, with the most dramatic results for the elderly.

The highest well-being results for the U.S. population when official poverty thresholds are assumed. However, the current official thresholds have been criticized as inadequate for the U.S. today (e.g., Citro and Michael 1995). This criticism may be warranted based on the analysis of personal assessments of economic needs presented in this study. These results reveal that minimum spending needs appear to reflect, on average, what consumers actually spend on

the four basic commodities noted, and this spending, and reported needs, are greater than the official poverty thresholds.

To better understand the relationship between spending needs and actual spending, it would be desirable for the MSQ to be collected in the same survey as total expenditures and subsets of these expenditures. Then the relationship between minimum spending and actual reported spending might be tested.

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